CLAIMS

1. A colloidal dispersion of a rare-earth compound, characterized in that the rare-earth compound is in the form of colloids having a perovskite structure of formula:

$$LnBO_3 \qquad (1)$$

in which:

- Ln is at least one rare earth other than just cerium;
- B is at least one element chosen from the group comprising elements of atomic number from 22 to 31, from 40 to 51, from 73 to 83 and aluminum.

2. The dispersion as claimed in claim 1, characterized in that the rare earth Ln is partly substituted with a monovalent or divalent cation, more particularly a cation chosen from alkali metals and alkaline-earth metals.

3. The dispersion as claimed in claim 1 or 2, characterized in that Ln is lanthanum or lanthanum combined with cerium.

4. The dispersion as claimed in one of the preceding claims, characterized in that the element B is chosen from iron, manganese, cobalt, nickel, ruthenium, chromium, palladium, platinum and copper.

5. The dispersion as claimed in one of the preceding claims, characterized in that the colloids have a mean diameter of between 5 and 200 nm, more particularly between 5 and 30 nm.

6. The dispersion as claimed in one of the preceding claims, characterized in that it includes a liquid phase, which is water.

7. The dispersion as claimed in one of claims 1 to 5, characterized in that it includes a liquid phase, which is formed by a water-miscible organic solvent/water mixture or by a water-miscible organic solvent.

8. A process for preparing a dispersion as claimed in one of the preceding claims, characterized in that it comprises the following steps:

- a perovskite of formula (1), having the form of elementary crystallites at most 500 nm in size, is brought into contact with a monovalent acid having a pKa of between 2.5 and 5.0;
- the mixture obtained is heated to a temperature of between 50°C and 200°C; and
- if necessary, the reaction mixture obtained is purified.

9. The process as claimed in claim 8, characterized in that acetic acid is used as monovalent acid.

10. The process as claimed in claim 8 or 9, characterized in that the perovskite is made to react with the monovalent acid in an amount such that the H^+/perovskite molar ratio is between 0.05 and 20, more particularly between 0.05 and 5.

11. The process as claimed in one of claims 8 to 10, characterized in that a perovskite is used that is obtained by a process in which an aqueous mixture of salts of the elements Ln and B and, optionally, the aforementioned monovalent or divalent cation is formed, said mixture is made to react with a base under basic conditions, whereby a precipitate is obtained, and the precipitate obtained is calcined at a temperature of at least 450°C.

12. The process as claimed in claim 11, characterized in that an aqueous mixture of salts of the elements Ln and B with a superstoichiometric Ln/B ratio is formed.

13. The process as claimed in claim 11 or 12, characterized in that, during the reaction or after the reaction of the salts of the elements Ln and B with the base, and before calcination, an organic compound chosen from carboxylic acids, amino acids, polyacrylic acids and their salts and alkylamines is added to the reaction mixture or to the mixture after the reaction.

14. The process as claimed in one of claims 11 to 13, characterized in that the precipitate is made to undergo a flash calcination at a temperature of between 800°C and 1200°C.

15. A composition in solid form, characterized in that it is obtained by evaporation, freeze drying, centrifugation, ultrafiltration or osmotic compression of a dispersion as claimed in one of claims 1 to 7 or a dispersion obtained by a process as claimed in one of claims 8 to 14.